

What is claimed is:

1. A zoom lens formed of only two lens groups, in order from the object side, as follows:

2 a first lens group; and

3 a second lens group;

4 wherein

5 the first lens group includes, in order from the object side: a first lens component of
6 negative refractive power that is made of plastic has at least one aspheric lens surface; and a
7 second lens component of positive refractive power;

8 the second lens group includes, in order from the object side: a stop; a first lens
9 component consisting of a first lens element having a biconvex shape and made of plastic with at
10 least one lens surface aspheric; and a second lens component that includes, in order from the
11 object side, a lens element having negative refractive power with the absolute value of the
12 curvature of its object-side lens surface being smaller than the absolute value of the curvature of
13 its image-side lens surface, said lens element being joined at said image-side lens surface to a
14 lens element having a biconvex shape; and

15 the following conditions are satisfied:

$$B^{1/2} < f_{G2} / f_w < 0.9 \cdot B$$

$$-2.0 < f_{G1-1} / f_w < -1.5$$

$$R_{G2-1} / f_w > 0.8$$

$$| f_{G1} / f_w | < 3 \cdot B$$

20 where

21 B is the zoom ratio of the zoom lens, namely, the ratio of the focal length at the telephoto
22 end divided by the focal length at the wide-angle end,

23 f_{G2} is the focal length of the second lens group,

24 f_w is the focal length of the zoom lens at the wide-angle end,

25 f_{G1-1} is the focal length of the first lens component of the first lens group,

26 R_{G2-1} is the radius of curvature of the object-side lens surface of the first lens element of
27 the second lens group, and
28 f_{G1} is the focal length of the first lens group.

- 1 2. The zoom lens of claim 1, wherein the first lens group consists of the first lens component of
2 the first lens group and the second lens component of the first lens group.

- 1 3. The zoom lens of claim 1, wherein each of the first lens component of the first lens group and
2 the second lens component of the first lens group consists of a lens element.

- 1 4. The zoom lens of claim 2, wherein each of the first lens component of the first lens group and
2 the second lens component of the first lens group consists of a lens element.

- 1 5. The zoom lens of claim 1, wherein the second lens group consists of three lens elements.

- 1 6. The zoom lens of claim 5, wherein the first lens group consists of the first lens component of
2 the first lens group and the second lens component of the first lens group.

- 1 7. The zoom lens of claim 5, wherein each of the first lens component of the first lens group and
2 the second lens component of the first lens group consists of a lens element.

- 1 8. The zoom lens of claim 6, wherein each of the first lens component of the first lens group and
2 the second lens component of the first lens group consists of a lens element.

- 1 9. A zoom lens formed of only two lens groups, arranged along an optical axis in order from the
2 object side as follows:
 - 3 a first lens group; and
 - 4 a second lens group;

5 wherein

6 the first lens group includes, arranged along the optical axis in order from the object side,
 7 a first lens component made of plastic, having negative refractive power, and having at least one
 8 aspheric lens surface, and a second lens component having positive refractive power;

9 the second lens group includes, in order from the object side: a stop; a first lens
 10 component consisting of a first lens element with a biconvex shape that is made of plastic and
 11 has at least one aspheric lens surface; and a second lens component that includes, in order from
 12 the object side, a lens element of negative refractive power with the absolute value of the
 13 curvature of its object-side lens surface being smaller than the absolute value of the curvature of
 14 its image-side lens surface, said lens element being joined at said image-side lens surface to a
 15 lens element having a biconvex shape;

16 focusing is performed by movement of the second lens group along the optical axis; and
 17 the following conditions are satisfied:

18 $B^{1/2} < f_{G2} / f_w < 0.9 \cdot B$

19 $-2.0 < f_{G1-1} / f_w < -1.5$

20 $R_{G2-1} / f_w > 0.8$

21 $| f_w / R_1 | < 0.08$

22 $10 < | f_{G2-2,3} / f_w | < 100$

23 where

24 B is the zoom ratio of the zoom lens, namely, the ratio of the focal length at the telephoto
 25 end divided by the focal length at the wide-angle end,

26 f_{G2} is the focal length of the second lens group,

27 f_w is the focal length of the zoom lens at the wide-angle end,

28 f_{G1-1} is the focal length of the first lens component of the first lens group,

29 R_{G2-1} is the radius of curvature of the object-side lens surface of the first lens element of
 30 the second lens group,

31 R_1 is the radius of curvature of the object-side lens surface of the first lens component of
 32 the first lens group, and

33 $f_{G2-2,3}$ is the composite focal length of the joined lens elements of the second lens group.

- 1 10. The zoom lens of claim 9, wherein the first lens group consists of the first lens component of
- 2 the first lens group and the second lens component of the first lens group.

- 1 11. The zoom lens of claim 9, wherein each of the first lens component of the first lens group
- 2 and the second lens component of the first lens group consists of a lens element.

- 1 12. The zoom lens of claim 10, wherein each of the first lens component of the first lens group
- 2 and the second lens component of the first lens group consists of a lens element.

- 1 13. The zoom lens of claim 9, wherein the second lens group consists of three lens elements.

- 1 14. The zoom lens of claim 13, wherein the first lens group consists of the first lens component
- 2 of the first lens group and the second lens component of the first lens group.

- 1 15. The zoom lens of claim 13, wherein each of the first lens component of the first lens group
- 2 and the second lens component of the first lens group consists of a lens element.

- 1 16. The zoom lens of claim 14, wherein each of the first lens component of the first lens group
- 2 and the second lens component of the first lens group consists of a lens element.

- 1 17. The zoom lens of claim 1, wherein at least three lens surfaces of the zoom lens are aspheric
- 2 lens surfaces.

- 1 18. The zoom lens of claim 9, wherein at least three lens surfaces of the zoom lens are aspheric
- 2 lens surfaces.

1 19. The zoom lens of claim 1, wherein the following condition is satisfied:

2 $| f_w / R_1 | < 0.025$

3 where

4 R_1 is the radius of curvature of the object-side lens surface of the first lens element of the
5 first lens component of the first lens group.

1 20. The zoom lens of claim 9, wherein the following condition is satisfied:

2 $| f_w / R_1 | < 0.025.$